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SHENANGO RIVER RESERVOIR, MERCER COUNTY, PENNSYLVANIA. EPA REGION III

Pacific Northwest Environmental Research Laboratory

Prepared for:

National Environmental Research Center

June 1975

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U.S. ENVIRONMENTAL PROTECTION AGENCY
NATIONAL EUTROPHICATION SURVEY

WORKING PAPER SERIES

REPORT

ON

SHENANGO RIVER RESERVOIR

MERCER COUNTY

PENNSYLVANIA

EPA REGION III

WORKING PAPER No. 426

PACIFIC NORTHWEST ENVIRONMENTAL RESEARCH LABORATORY

An Associate Laboratory of the

NATIONAL ENVIRONMENTAL RESEARCH CENTER - CORVALLIS, OREGON

and

NATIONAL ENVIRONMENTAL RESEARCH CENTER - LAS VEGAS, NEVADA

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REPORT

ON

SHENANGO RIVER RESERVOIR

MERCER COUNTY

PENNSYLVANIA

EPA REGION III

WORKING PAPER No. 426

WITH THE COOPERATION OF THE

PENNSYLVANIA DEPARTMENT OF ENVIRONMENTAL RESOURCES

AND THE

PENNSYLVANIA NATIONAL GUARD

JUNE, 1975

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16. ABSTRACT

Annual total phosphorus and total nitrogen loadings to the lake were estimated and subdivided according to either point or non-point source origin. An assessment of the lake's trophic condition and limiting nutrient is also provided. All data collected by the U.S.E.P.A. National Eutrophication Survey during the one year study of the lake and its tributaries are included in the report.

PRICES SUBJECT TO CHANGE

17. KEY WORDS AND DOCUMENT ANALYSIS

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FOREWORD

The National Eutrophication Survey was initiated in 1972 in response to an Administration commitment to investigate the nationwide threat of accelerated eutrophication to fresh water lakes and reservoirs.

OBJECTIVES

The Survey was designed to develop, in conjunction with state environmental agencies, information on nutrient sources, concentrations, and impact on selected freshwater lakes as a basis for formulating comprehensive and coordinated national, regional, and state management practices relating to point-source discharge reduction and non-point source pollution abatement in lake watersheds.

ANALYTIC APPROACH

The mathematical and statistical procedures selected for the Survey's eutrophication analysis are based on related concepts that:

a. A generalized representation or model relating sources, concentrations, and impacts can be constructed.

b. By applying measurements of relevant parameters associated with lake degradation, the generalized model can be transformed into an operational representation of a lake, its drainage basin, and related nutrients.

c. With such a transformation, an assessment of the potential for eutrophication control can be made.

LAKE ANALYSIS

In this report, the first stage of evaluation of lake and watershed data collected from the study lake and its drainage basin is documented. The report is formatted to provide state environmental agencies with specific information for basin planning [§303(e)], water quality criteria/standards review [§303(c)], clean lakes [§314(a,b)], and water quality monitoring [§106 and §305(b)] activities mandated by the Federal Water Pollution Control Act Amendments of 1972.

Beyond the single lake analysis, broader based correlations between nutrient concentrations (and loading) and trophic condition are being made to advance the rationale and data base for refinement of nutrient water quality criteria for the Nation's fresh water lakes. Likewise, multivariate evaluations for the relationships between land use, nutrient export, and trophic condition, by lake class or use, are being developed to assist in the formulation of planning guidelines and policies by EPA and to augment plans implementation by the states.

ACKNOWLEDGMENT

The staff of the National Eutrophication Survey (Office of Research & Development, U. S. Environmental Protection Agency) expresses sincere appreciation to the Pennsylvania Department of Environmental Resources for professional involvement and to the Pennsylvania National Guard for conducting the tributary sampling phase of the Survey.

Walter A. Lyon, Director of the Bureau of Water Quality Management, Richard M. Boardman, Chief of the Division of Water Quality, and James T. Ulanoski, Aquatic Biologist of the Division of Water Quality, provided invaluable lake documentation and counsel during the Survey, reviewed the preliminary reports, and provided critiques most useful in the preparation of this Working Paper series.

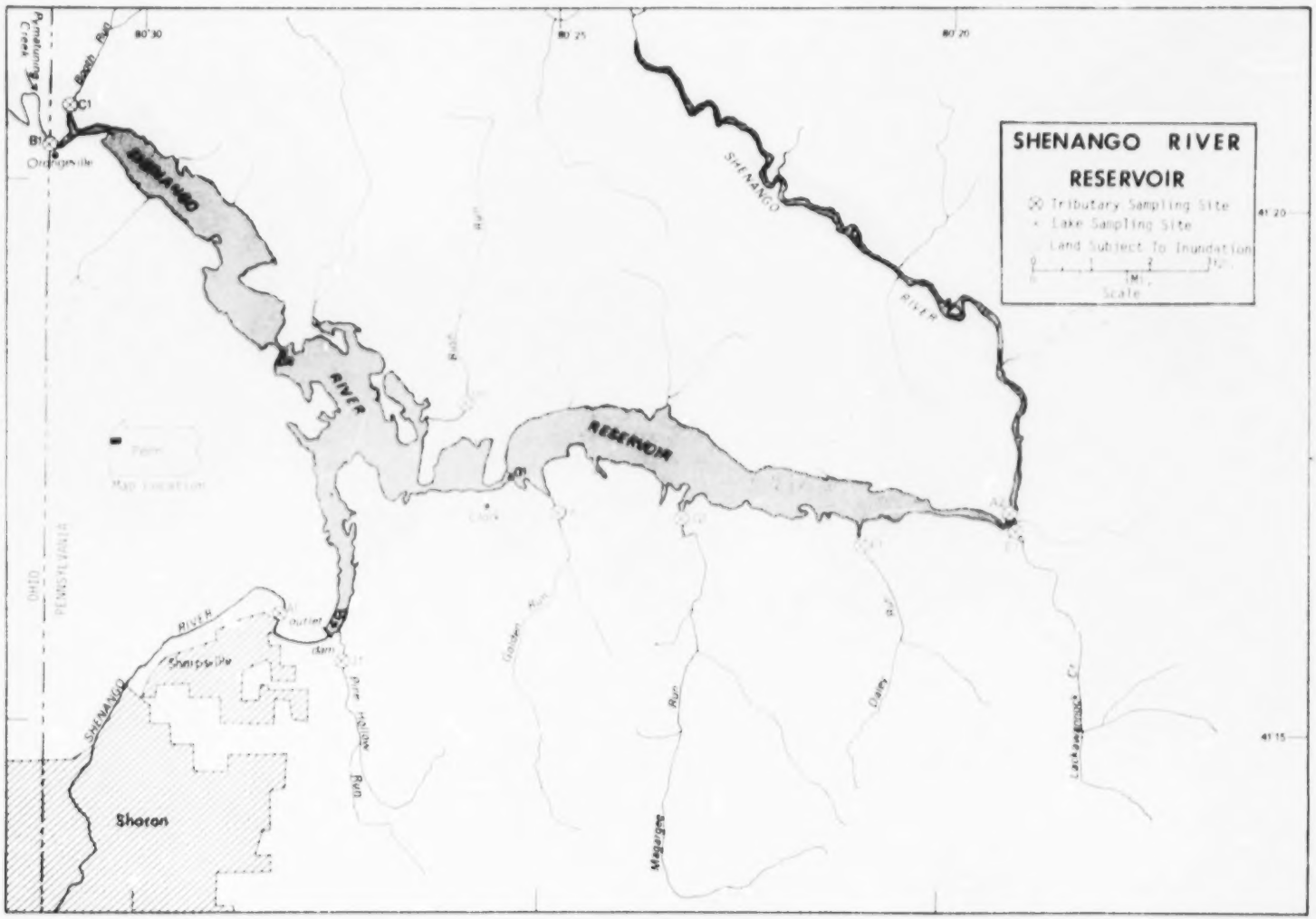
Major General Harry J. Mier, Jr., the Adjutant General of Pennsylvania, and Project Officer Major Ronald E. Wickard, who directed the volunteer efforts of the Pennsylvania National Guardsmen, are also gratefully acknowledged for their assistance to the Survey.

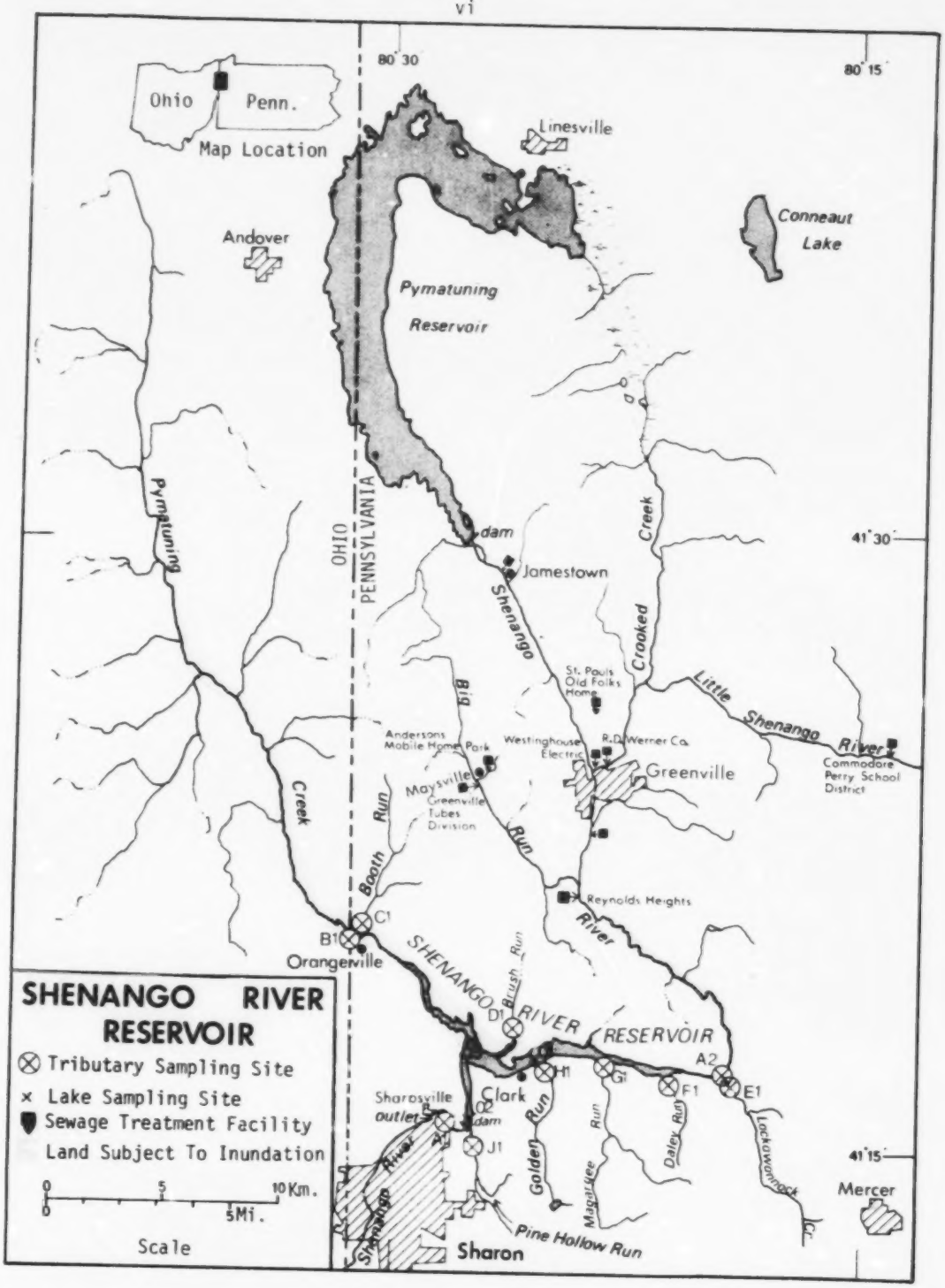
NATIONAL EUTROPHICATION SURVEY

STUDY LAKES

STATE OF PENNSYLVANIA

LAKE NAME	COUNTY
Allegheny Reservoir	McKean, Warren, PA; Cattaraugus, NY
Beaver Run Reservoir	Westmoreland
Beltzville	Carbon
Blanchard Reservoir	Centre
Canadohta	Crawford
Conneaut	Crawford
Conewago (Pinchot)	York
Greenlane	Montgomery
Harveys	Luzerne
Indian	Somerset
Naomi	Monroe
Ontelaunee	Berks
Pocono	Monroe
Pymatuning Reservoir	Crawford, PA; Ashtabula, OH
Shenango River Reservoir	Mercer
Stillwater	Monroe
Wallenpaupack	Pike, Wayne


SHENANGO RIVER
RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Land Subject To Inundation
Scale
80°30
80°25
80°20
41°20
41°15
C1
B1
Ohio
Pennsylvania
Sharpsville
Sharon
Outlet
Dam
Map Location
Pymatuning Creek
South Run
Golden Run
Pine Hollow Run
Magargee Run
Dairy Run
Lackawannock Cr.


80° 30
80° 15
41° 30
41° 15
Ohio
Penn.
Map Location
Linesville
Conneaut Lake
Andover
Pymatuning Reservoir
Pymatuning Creek
OHIO
PENNSYLVANIA
dam
Jamestown
Shenango River
Crooked Creek
Little Shenango River
St. Pauls Old Folks Home
Andersons Mobile Home Park
Westinghouse Electric
R.D. Werner Co.
Greenville
Commodore Perry School District
Maysville
Greenville Tubes Division
Big Run
Booth Run
Creek
Reynolds Heights
River
C1
B1
Orangeville
SHENANGO RIVER RESERVOIR
Rush Run
D1
H1
G1
A2
F1
E1
Sharpsville outlet
Clark
dam
J1
Golden Run
Magargee Run
Daley Run
Lockwoodmoor Cr.
Mercer
Shenango River
Pine Hollow Run
Sharon
SHENANGO RIVER RESERVOIR
Tributary Sampling Site
Lake Sampling Site
Sewage Treatment Facility
Land Subject To Inundation
0 5 10 Km.
0 5 Mi.
Scale

SHENANGO RIVER RESERVOIR*

STORET NO. 4216

I. CONCLUSIONS

A. Trophic Condition:

Survey data indicate that Shenango River Reservoir is eutrophic. It ranked fourteenth in overall trophic quality when the 17 Pennsylvania lakes sampled in 1973 were compared using a combination of six lake parameters**. Thirteen of the lakes had less median total phosphorus, 11 had less and two had the same median dissolved phosphorus, nine had less median inorganic nitrogen, 15 had less mean chlorophyll a, and 14 had greater mean Secchi disc transparency. Marked depression of dissolved oxygen with depth occurred at sampling stations 1 and 2 in July, 1973.

Survey limnologists noted algae over much of the reservoir surface in July, but no macrophytes were observed during any of the sampling visits.

B. Rate-Limiting Nutrient:

The algal assay results indicate that the reservoir was phosphorus limited at the time the sample was collected (04/20/73). The lake data indicate phosphorus limitation at the other sampling times as well.

---

* Table of metric conversions--Appendix A.
** See Appendix B.

C. Nutrient Controllability:

1. Point sources--The phosphorus contribution of the listed point sources amounted to almost 38% of the total reaching Shenango River Reservoir during the sampling year; including Greenville (26.3%), Reynolds Heights (5.9%), Westinghouse Electric (2.4%), and Jamestown (1.7%). The six remaining listed point sources collectively contributed a total of 1.3%.

The present phosphorus loading rate of 3.92 $g/m^2/yr$ is three times that proposed by Vollenweider (Vollenweider and Dillon, 1974) as a eutrophic rate (see page 16). For this reason, all phosphorus inputs to Shenango River Reservoir, as well as upstream Pymatuning Reservoir, should be minimized to the greatest practicable extent to slow the aging of this reservoir (nearly 14% of the total phosphorus load to Shenango River Reservoir was contributed by the outlet of Pymatuning Reservoir*).

2. Non-point sources--Over 62% of the total phosphorus input to Shenango River Reservoir came from non-point sources during the sampling year. The Shenango River contributed 39.6% of the total (after accounting for nine point sources); Pymatuning Creek, 18.7%; and Lackawannock Creek, 1.2%. The six remaining gaged tributaries collectively accounted for 1.8%

* See Working Paper No. 425, "Report on Pymatuning Reservoir".

of the total. Ungaged tributaries were estimated to have contributed 0.6%.

Brush Run, Lackawannock Creek, and Pymatuning Creek had phosphorus export rates of 36, 30, and 27 kg/km^2/yr, respectively (see page 15). These rates are considerably higher than those of the other unimpacted tributaries of the reservoir and may be due to unidentified point sources rather than to non-point source inputs.

II. LAKE AND DRAINAGE BASIN CHARACTERISTICS

A. Lake Morphometry†:

1. Surface area: 14.41 kilometers^2.
2. Mean depth: 2.5 meters.
3. Maximum depth: 10.7 meters.
4. Volume: 36.025 x 10^6 m^3.
5. Mean hydraulic retention time: 21 days (based on outlet flow).

B. Tributary and Outlet:
(See Appendix C for flow data)

1. Tributaries -

Name	Drainage area (km^2)*	Mean flow (m^3/sec)*
Shenango River	929.8	12.0
Pymatuning Creek	385.9	3.2
Booth Run	27.2	0.2
Brush Run	14.2	0.1
Lackawannock Creek	23.3	0.2
Daley Run	8.1	0.1
Magargee Run	23.5	0.1
Golden Run	11.7	0.1
Pine Hollow Run	11.3	0.1
Minor tributaries & immediate drainage -	63.2	0.9
Totals	1,498.2	17.0

2. Outlet -

Shenango River	1,512.6**	20.0

† Ulanoski, 1975.
* For limits of accuracy, see Working Paper No. 175, "...Survey Methods, 1973-1976".
** Includes area of lake.

C. Precipitation*:

1. Year of sampling: 89.6 centimeters.

2. Mean annual: 89.8 centimeters.

* See Working Paper No. 175.

III. LAKE WATER QUALITY SUMMARY

Shenango River Reservoir was sampled three times during the open-water season of 1973 by means of a pontoon-equipped Huey helicopter. Each time, samples for physical and chemical parameters were collected from three stations on the lake and from a number of depths at each station (see map, page v). During each visit, a single depth-integrated (near bottom to surface) sample was composited from the stations for phytoplankton identification and enumeration; and during the first visit, a single 18.9-liter depth-integrated sample was composited for algal assays. Also each time, a depth-integrated sample was collected from each of the stations for chlorophyll *a* analysis. The maximum depths sampled were 6.1 meters at station 1, 8.8 meters at station 2, and 4.0 meters at station 3.

The lake sampling results are presented in full in Appendix D and are summarized in the following table.

A. SUMMARY OF PHYSICAL AND CHEMICAL CHARACTERISTICS FOR SHENANGO RIVER RESERVOIR
STORET CODE 4216

PARAMETER	1ST SAMPLING (4/20/73) 3 SITES RANGE	MEAN	MEDIAN	2ND SAMPLING (7/31/73) 3 SITES RANGE	MEAN	MEDIAN	3RD SAMPLING (10/ 8/73) 3 SITES RANGE	MEAN	MEDIAN
TEMP (C)	10.2 - 86.0	33.5	14.0	23.6 - 25.6	24.8	24.7	18.0 - 18.3	18.2	18.2
DISS OXY (MG/L)	9.9 - 15.5	12.6	12.8	0.5 - 7.4	5.0	5.4	6.2 - 8.8	7.3	6.8
CNDCTVY (MCROMO)	180. - 385.	230.	213.	198. - 215.	206.	206.	177. - 212.	191.	191.
PH (STAND UNITS)	7.9 - 13.5	9.3	8.6	6.4 - 8.0	7.0	6.8	7.4 - 7.9	7.6	7.6
TOT ALK (MG/L)	32. - 44.	36.	36.	60. - 68.	62.	61.	55. - 75.	62.	61.
TOT P (MG/L)	0.023 - 0.065	0.037	0.029	0.047 - 0.096	0.064	0.058	0.049 - 0.112	0.077	0.064
ORTHO P (MG/L)	0.004 - 0.011	0.007	0.007	0.006 - 0.014	0.009	0.008	0.005 - 0.013	0.008	0.007
NO2+NO3 (MG/L)	0.340 - 0.600	0.459	0.435	0.040 - 0.080	0.056	0.050	0.040 - 0.290	0.191	0.240
AMMONIA (MG/L)	0.030 - 0.060	0.043	0.040	0.060 - 0.720	0.188	0.105	0.030 - 0.200	0.083	0.070
KJEL N (MG/L)	0.400 - 0.600	0.480	0.450	0.600 - 1.400	0.980	0.950	0.700 - 1.600	1.029	1.000
INORG N (MG/L)	0.370 - 0.660	0.502	0.470	0.110 - 0.760	0.244	0.160	0.130 - 0.360	0.274	0.320
TOTAL N (MG/L)	0.810 - 1.100	0.939	0.945	0.660 - 1.440	1.036	1.000	0.990 - 1.650	1.220	1.240
CHLRPYL A (UG/L)	9.7 - 13.9	12.2	12.9	22.3 - 57.5	45.0	55.3	13.8 - 36.3	23.2	19.5
SECCHI (METERS)	0.9 - 0.9	0.9	0.9	0.6 - 0.9	0.8	0.9	0.7 - 1.2	1.0	1.2

B. Biological characteristics:

1. Phytoplankton* -

Sampling Date	Dominant Genera	Algal Units per ml
04/20/73	1. Melosira	1,706
	2. Asterionella	1,389
	3. Flagellates	198
	4. Ankistrodesmus	99
	5. Synedra	79
	Other genera	120
	Total	3,591
07/31/73	1. Anabaena	2,071
	2. Aphanizomenon (?)	323
	3. Stephanodiscus	323
	4. Melosira	296
	5. Flagellates	215
	Other genera	885
	Total	4,113

2. Chlorophyll a -

Sampling Date	Station Number	Chlorophyll a (µg/l)
04/20/73	01	12.9
	02	9.7
	03	13.9
07/31/73	01	57.5
	02	22.3
	03	55.3
10/08/73	01	36.3
	02	13.8
	03	19.5

* The October sample was lost in shipment.

C. Limiting Nutrient Study:

1. Autoclaved, filtered, and nutrient spiked -

Spike (mg/l)	Ortho P Conc. (mg/l)	Inorganic N Conc. (mg/l)	Maximum yield (mg/l-dry wt.)
Control	0.020	0.514	5.7
0.050 P	0.070	0.514	15.0
0.050 P + 1.0 N	0.070	1.514	23.3
1.0 N	0.020	1.514	4.7

2. Discussion -

The control yield of the assay alga, Selenastrum capricornutum, indicates that the potential primary productivity of Shenango River Reservoir was high at the time the sample was collected. The addition of phosphorus alone produced a significant increase in yield, but no such increase occurred with the addition of only nitrogen. This indicates limitation by phosphorus.

The lake data further substantiate phosphorus limitation. At all sampling times, the mean N/P ratios were 27/1 or greater.

IV. NUTRIENT LOADINGS
(See Appendix E for data)

For the determination of nutrient loadings, the Pennsylvania National Guard collected monthly near-surface grab samples from each of the tributary sites indicated on the map (page vi), except for the high runoff months of February and April when two samples were collected. Sampling was begun in May, 1973, and was completed in April, 1974.

Through an interagency agreement, stream flow estimates for the year of sampling and a "normalized" or average year were provided by the Pennsylvania District Office of the U.S. Geological Survey for the tributary sites nearest the lake.

In this report, nutrient loads for sampled tributaries were determined by using a modification of a U.S. Geological Survey computer program for calculating stream loadings*. Nutrient loads shown are those measured minus point-source loads, if any.

Nutrient loads for unsampled "minor tributaries and immediate drainage" ("ZZ" of U.S.G.S.) were estimated using the means of the nutrient loads, in $kg/km^2/year$, at stations C-1, F-1, G-1, and H-1 and multiplying the means by the ZZ area in km^2.

The operators of the Greenville, Reynolds Heights, Westinghouse Electric Corp., Jamestown, Greenville Tubes Division, Commodore Perry

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* See Working Paper No. 175.

School District, R.D. Werner Co., Inc., and Anderson's Mobile Home Park wastewater treatment plants provided monthly effluent samples and corresponding flow data. St. Paul's Home did not participate in the Survey, and nutrient loads were estimated at 1.134 kg P and 3.401 kg N/capita/year.

Estimates of nutrient contributions by wild ducks and geese were based on the following numbers of waterfowl using Shenango River Reservoir as provided by the Pennsylvania Department of Environmental Resources (Ulanoski, 1975).

Summer resident ducks	250
Summer resident geese	50
Migratory ducks	2,000
Migratory geese	300

In calculating the nutrient loads, the following assumptions were made:

1. Each wild duck contributes 0.45 kg total nitrogen and 0.20 kg total phosphorus per year (Paloumpis and Starrett, 1960).

2. Each wild goose contributes the same amount as one duck since geese typically feed in fields away from the lake several hours each day.

3. Summer or winter resident waterfowl are at the lake for six months of the year.

4. Migratory waterfowl spend a total of one month per year at the lake; i.e., 15 days during Spring migration and 15 days during Fall migration.

A. Waste Sources*:

1. Known muncipal -

Name	Pop. Served	Treatment	Mean Flow (m^3/d)	Receiving Water
Anderson's Mobile Home Park	94	lagoon	14.2	Big Run
Commodore Perry Sch. District	1,088	act. sludge	17.8	Little Shenango River
Reynolds Heights	5,859**	trickling filter	2,217.6	Shenango River
Greenville	10,000	trickling filter	5,874.1	Shenango River
St. Paul's Old Folk's Home	70	lagoon	37.8	Shenango River
Jamestown	960	act. sludge	613.2	Shenango River

2. Known industrial -

Name	Product	Treatment	Mean flow (m^3/d)	Receiving Water
R. D. Werner Company	aluminum products	none	362.0	Little Shenango River
Greenville Tubes Division	stainless steel tubing	none	1,682.4	Big Run
Westing-house Electric	electrical equipment	lime neutral. & sedimentation	36.7	Shenango River

* Treatment plant questionnaires.
** Estimate based on flow of 0.3785 m^3/capita/day.

B. Annual Total Phosphorus Loading - Average Year:

1. Inputs -

Source	kg P/yr	% of total
a. Tributaries (non-point load) -		
Shenango River	22,345	39.5
Pymatuning Creek	10,545	18.6
Booth Run	80	0.1
Brush Run	505	0.9
Lackawannock Creek	690	1.2
Daley Run	70	0.1
Magargee Run	110	0.2
Golden Run	60	0.1
Pine Hollow Run	200	0.4
b. Minor tributaries & immediate drainage (non-point load) -	350	0.6
c. Known municipal STP's -		
Anderson's Mobile Home Park	25	<0.1
Commodore Perry Sch. Dist.	45	0.1
Reynolds Heights	3,315	5.9
Greenville	14,865	26.3
St. Paul's Old Folks Home	80	0.1
Jamestown	965	1.7
d. Septic tanks* -	5	<0.1
e. Known industrial -		
R. D. Werner Company	120	0.2
Greenville Tubes Division	495	0.9
Westinghouse Electric	1,360	2.4
f. Wild ducks and geese -	70	0.1
g. Direct precipitation** -	250	0.4
Total	56,550	100.0

2. Outputs -

Lake outlet - Shenango River 42,060

3. Net annual P accumulation - 14,490 kg.

* Estimate based on two lakeshore parks; see Working Paper No. 175.
** See Working Paper No. 175.

C. Annual Total Nitrogen Loading - Average Year:

1. Inputs -

Source	kg N/ yr	% of total
a. Tributaries (non-point load) -		
Shenango River	486,915	64.1
Pymatuning Creek	154,155	20.3
Booth Run	7,020	0.9
Brush Run	3,510	0.5
Lackawannock Creek	9,320	1.2
Daley Run	4,015	0.5
Magargee Run	6,645	0.9
Golden Run	2,940	0.4
Pine Hollow Run	2,175	0.3
b. Minor tributaries & immediate drainage (non-point load) -	20,350	2.7
c. Known municipal STP's -		
Anderson's Mobile Home Park	45	<0.1
Commodore Perry Sch. Dist.	135	<0.1
Reynolds Heights	8,345	1.1
Greenville	31,545	4.1
St. Paul's Old Folks Home	240	<0.1
Jamestown	2,070	0.3
d. Septic tanks* -	70	<0.1
e. Known industrial -		
R. D. Werner Company	235	<0.1
Greenville Tubes Division	2,750	0.4
Westinghouse Electric	2,005	0.3
f. Wild ducks and geese -	155	<0.1
g. Direct precipitation** -	15,555	2.0
Total	760,195	100.0

2. Outputs -

Lake outlet - Shenango River 894,835

3. Net annual N loss - 134,640 kg.

* Estimate based on two lakeshore parks; see Working Paper No. 175.
** See Working Paper No. 175.

D. Mean Annual Non-point Nutrient Export by Subdrainage Area:

Tributary	kg P/km²/yr	kg N/km²/yr
Shenango River	24	524
Pymatuning Creek	27	399
Booth Run	3	258
Brush Run	36	247
Lackawannock Creek	30	400
Daley Run	9	496
Magargee Run	5	283
Golden Run	5	251
Pine Hollow Run	18	192

E. Yearly Loading Rates:

In the following table, the existing phosphorus loading rates are compared to those proposed by Vollenweider (Vollenweider and Dillon, 1974). Essentially, his "dangerous" rate is the rate at which the receiving water would become eutrophic or remain eutrophic; his "permissible" rate is that which would result in the receiving water remaining oligotrophic or becoming oligotrophic if morphometry permitted. A mesotrophic rate would be considered one between "dangerous" and "permissible".

Note that Vollenweider's model may not be applicable to water bodies with short hydraulic retention times.

	Total Phosphorus		Total Nitrogen	
	Total	Accumulated	Total	Accumulated
grams/m^2/yr	3.92	1.01	52.8	loss*

Vollenweider loading rates for phosphorus ($g/m^2/yr$) based on mean depth and mean hydraulic retention time of Shenango River Reservoir:

"Dangerous" (eutrophic rate)	1.26
"Permissible" (oligotrophic rate)	0.63

* There was an apparent loss of nitrogen during the sampling year. This may have been due to nitrogen fixation in the reservoir, solubilization of previously sedimented nitrogen, recharge with nitrogen-rich ground water, unknown and unsampled point sources discharging directly to the reservoir, or underestimation of the nitrogen loads from the listed point sources. Whatever the cause, a similar nitrogen loss had occurred at Shagawa Lake, Minnesota, which has been intensively studied by EPA's National Eutrophication and Lake Restoration Branch (Malueg et al., 1975).

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VII. APPENDICES

APPENDIX A

CONVERSION FACTORS

CONVERSION FACTORS

Hectares x 2.471 = acres

Kilometers x 0.6214 = miles

Meters x 3.281 = feet

Cubic meters x 8.107×10^{-4} = acre/feet

Square kilometers x 0.3861 = square miles

Cubic meters/sec x 35.315 = cubic feet/sec

Centimeters x 0.3937 = inches

Kilograms x 2.205 = pounds

Kilograms/square kilometer x 5.711 = lbs/square mile

APPENDIX B

LAKE RANKINGS

LAKES RANKED BY INDEX NOS.

RANK	LAKE CODE	LAKE NAME	INDEX NO
1	4224	LAKE NAOMI	445
2	4220	BELTZVILLE DAM	423
3	4222	HARVEY'S LAKE	413
4	4228	STILLWATER LAKE	401
5	4227	POCONO LAKE	389
6	4223	INDIAN LAKE	388
7	3641	ALLEGHENY RESERVOIR	385
8	4229	LAKE WALLENPAUPACK	371
9	4221	CANADOHTA LAKE	369
10	4219	BEAVER RUN RESERVOIR	360
11	4204	CONNEAUT LAKE	307
12	4226	PINCHOT LAKE	256
13	4213	PYMATUNING RESERVOIR	206
14	4216	SHENANGO RIVER RESERVOIR	157
15	4225	ONTELAUNEE DAM	101
16	4201	BLANCHARD RESERVOIR	85
17	4207	GREENLANE DAM	53

PERCENT OF LAKES WITH HIGHER VALUES (NUMBER OF LAKES WITH HIGHER VALUES)

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS P	INDEX NO
3641	ALLEGHENY RESERVOIR	56 (9)	38 (6)	63 (10)	100 (16)	69 (11)	59 (8)	385
4201	BLANCHARD RESERVOIR	13 (2)	13 (2)	25 (4)	31 (5)	3 (0)	0 (0)	85
4204	CONNEAUT LAKE	44 (7)	63 (10)	69 (11)	56 (9)	34 (5)	41 (6)	307
4207	GREENLANE DAM	6 (1)	6 (1)	19 (3)	13 (2)	3 (0)	6 (1)	53
4213	PYMATUNING RESERVOIR	0 (0)	72 (11)	6 (1)	0 (0)	100 (16)	28 (4)	206
4216	SHENANGO RIVER RESERVOIR	19 (3)	44 (7)	13 (2)	6 (1)	47 (7)	28 (4)	157
4219	BEAVER RUN RESERVOIR	94 (15)	19 (3)	88 (14)	81 (13)	19 (2)	59 (8)	360
4220	BELTZVILLE DAM	88 (14)	25 (4)	94 (15)	94 (15)	34 (5)	88 (13)	423
4221	CANADOHTA LAKE	50 (8)	97 (15)	56 (9)	19 (3)	59 (9)	88 (13)	369
4222	HARVEY'S LAKE	63 (10)	81 (13)	100 (16)	63 (10)	47 (7)	59 (8)	413
4223	INDIAN LAKE	100 (16)	31 (5)	75 (12)	75 (12)	19 (2)	88 (13)	388
4224	LAKE NAOMI	81 (13)	88 (14)	44 (7)	69 (11)	88 (14)	75 (12)	445
4225	ONTELAUNEE DAM	25 (4)	0 (0)	0 (0)	44 (7)	19 (2)	13 (2)	101
4226	PINCHOT LAKE	31 (5)	56 (9)	31 (5)	38 (6)	81 (13)	19 (3)	256
4227	POCONO LAKE	38 (6)	97 (15)	50 (8)	88 (14)	75 (12)	41 (6)	389
4228	STILLWATER LAKE	72 (11)	72 (11)	38 (6)	25 (4)	94 (15)	100 (16)	401
4229	LAKE WALLENPAUPACK	72 (11)	50 (8)	81 (13)	50 (8)	59 (9)	59 (8)	371

LAKE DATA TO BE USED IN RANKINGS

LAKE CODE	LAKE NAME	MEDIAN TOTAL P	MEDIAN INORG N	500-MEAN SEC	MEAN CHLORA	15-MIN DO	MEDIAN DISS P
3641	ALLEGHENY RESERVOIR	0.016	0.380	414.250	3.700	13.800	0.006
4201	BLANCHARD RESERVOIR	0.064	1.300	453.143	15.187	14.900	0.046
4204	CONNEAUT LAKE	0.023	0.185	402.000	7.567	14.600	0.007
4207	GREENLANE DAM	0.066	1.475	460.222	24.011	14.900	0.020
4213	PYMATUNING RESERVOIR	0.070	0.180	467.750	56.333	7.700	0.008
4216	SHENANGO RIVER RESERVOIR	0.058	0.340	463.555	26.800	14.500	0.008
4219	BEAVER RUN RESERVOIR	0.009	0.835	384.833	5.183	14.800	0.006
4220	BELTZVILLE DAM	0.010	0.815	362.444	4.856	14.600	0.005
4221	CANADOHTA LAKE	0.020	0.130	436.000	19.167	14.100	0.005
4222	HARVEY'S LAKE	0.015	0.160	338.000	5.967	14.500	0.006
4223	INDIAN LAKE	0.008	0.520	400.222	5.211	14.800	0.005
4224	LAKE NAOMI	0.014	0.135	443.333	5.533	8.000	0.005
4225	ONTELAUNEE DAM	0.040	2.150	470.667	11.783	14.800	0.011
4226	PINCHOT LAKE	0.027	0.245	453.000	13.950	11.500	0.008
4227	POCONO LAKE	0.024	0.130	438.800	4.980	13.200	0.007
4228	STILLWATER LAKE	0.015	0.180	449.000	18.233	7.900	0.004
4229	LAKE WALLENPAUPACK	0.015	0.250	394.583	9.617	14.100	0.006

APPENDIX C

TRIBUTARY FLOW DATA

TRIBUTARY FLOW INFORMATION FOR PENNSYLVANIA 1/27/75

LAKE CODE 4216 SHENANGO RIVER RES

TOTAL DRAINAGE AREA OF LAKE(SQ KM) 1512.6

TRIBUTARY	SUB-DRAINAGE AREA(SQ KM)	NORMALIZED FLOWS(CMS) JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	MEAN
4216A1	1512.6	27.35	33.50	41.14	31.12	21.41	12.80	11.52	9.34	8.47	9.40	13.42	21.27	19.99
4216A2	929.8	16.99	15.89	22.60	20.64	11.89	8.21	6.99	5.35	7.67	6.97	7.56	13.62	12.01
4216B1	385.9	3.31	5.97	9.57	6.46	3.40	1.76	0.99	0.27	0.25	0.82	1.98	3.60	3.18
4216C1	27.2	0.34	0.37	0.62	0.37	0.18	0.06	0.03	0.01	0.01	0.03	0.09	0.20	0.19
4216D1	14.2	0.10	0.11	0.15	0.11	0.07	0.03	0.02	0.01	0.01	0.02	0.05	0.07	0.06
4216E1	23.3	0.28	0.37	0.40	0.48	0.48	0.27	0.16	0.12	0.08	0.07	0.11	0.20	0.24
4216F1	8.1	0.10	0.10	0.15	0.10	0.06	0.03	0.02	0.01	0.01	0.02	0.04	0.07	0.06
4216G1	23.5	0.21	0.23	0.31	0.23	0.14	0.06	0.04	0.02	0.02	0.04	0.09	0.15	0.13
4216H1	11.7	0.10	0.11	0.17	0.11	0.06	0.02	0.01	0.01	0.00	0.01	0.03	0.06	0.06
4216J1	11.3	0.10	0.11	0.16	0.11	0.07	0.03	0.02	0.01	0.01	0.02	0.04	0.07	0.06
4216ZZ	77.4	1.16	1.25	1.84	1.56	0.88	0.57	0.45	0.31	0.42	0.42	0.54	0.96	0.86

SUMMARY

TOTAL DRAINAGE AREA OF LAKE = 1512.6
SUM OF SUB-DRAINAGE AREAS = 1512.6

TOTAL FLOW IN = 202.79
TOTAL FLOW OUT = 240.75

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
4216A1	5	73	37.66	19	41.91				
	6	73	26.87	9	51.25				
	7	73	7.50	14	7.58				
	8	73	7.58	11	7.58				
	9	73	8.04	15	8.21				
	10	73	9.88	13	10.48				
	11	73	17.10	17	16.14				
	12	73	28.32	16	14.44				
	1	74	47.29	12	20.18				
	2	74	41.63	9	41.06				
	3	74	39.93	9	53.80				
	4	74	36.53	13	45.59				
4216A2	5	73	22.85	19	18.09				
	6	73	14.19	9	20.81				
	7	73	4.11	14	3.23				
	8	73	4.73	11	3.43				
	9	73	5.30	15	5.21				
	10	73	6.88	13	5.89				
	11	73	10.79	17	9.29				
	12	73	16.17	16	11.50				
	1	74	26.45	12	13.62				
	2	74	28.59	9	19.62				
	3	74	26.08	9	72.77				
	4	74	23.59	13	23.53				

TRIBUTARY FLOW INFORMATION FOR PENNSYLVANIA 1/27/75

LAKE CODE 4216 SHENANGO RIVER RES

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
421601	5	73	6.65	19	2.18				
	6	73	3.99	9	6.48				
	7	73	0.49	14	0.18				
	8	73	0.29	11	0.09				
	9	73	0.13	15	0.15				
	10	73	0.55	13	0.20				
	11	73	2.61	17	1.36				
	12	73	5.64	16	4.16				
	1	74	6.54	12	0.79				
	2	74	2.89	9	1.13				
	3	74	9.97	9	21.04				
	4	74	6.63	13	5.72				
4216C1	5	73	0.37	19	0.07				
	6	73	0.14	9	0.12				
	7	73	0.02	14	0.03				
	8	73	0.02	11	0.00				
	9	73	0.00	15	0.00				
	10	73	0.02	13	0.02				
	11	73	0.10	17	0.25				
	12	73	0.31	16	0.04				
	1	74	0.59	12	0.08				
	2	74	0.16	9	0.14				
	3	74	1.19	9	0.31				
	4	74	0.48	13	0.15				
421601	5	73	0.11	19	0.04				
	6	73	0.06	9	0.05				
	7	73	0.02	14	0.02				
	8	73	0.02	11	0.01				
	9	73	0.01	15	0.01				
	10	73	0.02	13	0.02				
	11	73	0.05	17	0.08				
	12	73	0.10	16	0.03				
	1	74	0.14	12	0.04				
	2	74	0.06	9	0.06				
	3	74	0.22	9	0.09				
	4	74	0.12	13	0.06				
4216E1	5	73	0.40	19	0.18				
	6	73	0.25	9	0.23				
	7	73	0.10	14	0.13				
	8	73	0.10	11	0.04				
	9	73	0.05	15	0.05				
	10	73	0.09	13	0.10				
	11	73	0.24	17	0.31				
	12	73	0.37	16	0.14				
	1	74	0.48	12	0.19				
	2	74	0.26	9	0.25				
	3	74	0.65	9	0.34				
	4	74	0.42	13	0.25				

LAKE CODE 4216 SHENANGO RIVER RES

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
4216F1	5	73	0.10	19	0.03				
	6	73	0.05	9	0.05				
	7	73	0.01	14	0.02				
	8	73	0.01	11	0.00				
	9	73	0.00	15	0.00				
	10	73	0.01	13	0.01				
	11	73	0.04	17	0.08				
	12	73	0.09	16	0.02				
	1	74	0.14	12	0.03				
	2	74	0.06	9	0.05				
	3	74	0.24	9	0.09				
	4	74	0.12	13	0.06				
4216G1	5	73	0.23	19	0.07				
	6	73	0.12	9	0.10				
	7	73	0.03	14	0.05				
	8	73	0.03	11	0.01				
	9	73	0.01	15	0.01				
	10	73	0.03	13	0.03				
	11	73	0.09	17	0.17				
	12	73	0.20	16	0.05				
	1	74	0.31	12	0.08				
	2	74	0.13	9	0.12				
	3	74	0.51	9	0.20				
	4	74	0.27	13	0.12				
4216H1	5	73	0.11	19	0.02				
	6	73	0.05	9	0.04				
	7	73	0.01	14	0.01				
	8	73	0.01	11	0.00				
	9	73	0.00	15	0.00				
	10	73	0.01	13	0.01				
	11	73	0.03	17	0.08				
	12	73	0.09	16	0.02				
	1	74	0.16	12	0.03				
	2	74	0.05	9	0.05				
	3	74	0.31	9	0.09				
	4	74	0.14	13	0.05				
4216J1	5	73	0.11	19	0.03				
	6	73	0.05	9	0.05				
	7	73	0.01	14	0.02				
	8	73	0.01	11	0.00				
	9	73	0.00	15	0.00				
	10	73	0.01	13	0.01				
	11	73	0.04	17	0.08				
	12	73	0.10	16	0.02				
	1	74	0.15	12	0.03				
	2	74	0.06	9	0.05				
	3	74	0.25	9	0.09				
	4	74	0.12	13	0.06				

TRIBUTARY FLOW INFORMATION FOR PENNSYLVANIA 1/27/75

LAKE CODE 4216 SHENANGO RIVER RES

MEAN MONTHLY FLOWS AND DAILY FLOWS(CMS)

TRIBUTARY	MONTH	YEAR	MEAN FLOW	DAY	FLOW	DAY	FLOW	DAY	FLOW
421622	5	73	1.67	19	1.13				
	6	73	1.02	9	1.50				
	7	73	0.26	14	0.20				
	8	73	0.28	11	0.19				
	9	73	0.28	15	0.28				
	10	73	0.40	13	0.34				
	11	73	0.76	17	0.62				
	12	73	1.25	16	0.85				
	1	74	1.90	12	0.79				
	2	74	1.30	9	1.16				
	3	74	2.12	9	5.13				
	4	74	1.73	13	1.61				

APPENDIX D

PHYSICAL and CHEMICAL DATA

STORET RETRIEVAL DATE 73/01/27

421601
41 17 12.0 080 25 46.0
SHENANGO RIVER RESERVOIR
42085 PENNSYLVANIA

11EPALES 2111202
3 0012 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/20	16 15	0000	14.5		36	190	8.80	36	0.040	0.400	0.410	0.004
	16 15	0004	14.2	13.6		190	8.80	35	0.030	0.400	0.420	0.011
	16 15	0008	13.8	13.5		240	8.60	35	0.040	0.400	0.450	0.008
73/07/31	10 30	0000	25.0		25	214	8.00	60	0.070	1.200	0.050	0.012
	10 30	0005	24.7	7.4		213	7.40	60	0.060	1.000	0.050	0.008
	10 30	0020	24.3	3.4		215	6.90	64	0.330	1.300	0.080	0.010
73/10/08	09 25	0000	18.0	8.8	28	177	7.70	55	0.100	1.600	0.050	0.012
	09 25	0014	18.1	8.2		177	7.90	55	0.090	1.000	0.040	0.013

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/20	16 15	0000	0.029	12.9
	16 15	0004	0.065	
	16 15	0008	0.025	
73/07/31	10 30	0000	0.080	57.5
	10 30	0005	0.080	
	10 30	0020	0.096	
73/10/08	09 25	0000	0.112	36.3
	09 25	0014	0.110	

60
A

STORET RETRIEVAL DATE 75/01/27

421602
41 16 06.0 080 27 33.0
SHENANGO RIVER RESERVOIR
42085 PENNSYLVANIA

11EPALES
3

2111202
0029 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/20	16 40	0000	11.4		35	385	8.30	38	0.040	0.400	0.510	0.007
	16 40	0008	10.5	10.4		180	7.90	33	0.050	0.400	0.560	0.008
	16 40	0015	10.4	10.2		200	8.40	32	0.060	0.500	0.590	0.007
	16 40	0029	10.2	9.9		250	8.10	33	0.060	0.500	0.600	0.006
73/07/31	10 05	0000	24.7		36	198	6.60	60	0.120	0.900	0.050	0.006
	10 05	0005	24.6	5.4		198	6.60	60	0.160	0.700	0.050	0.008
	10 05	0015	24.5	4.4		199	6.60	60	0.190	0.800	0.050	0.010
	10 05	0025	23.6	0.5		207	6.40	68	0.720	1.400	0.040	0.014
73/10/08	09 55	0000	18.3	6.8	48	193	7.70	61	0.040	1.000	0.290	0.007
	09 55	0015	18.2	6.6		191	7.60	61	0.030	0.700	0.290	0.005
	09 55	0026	18.2	6.2		191	7.50	62	0.070	0.800	0.290	0.005

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/20	16 40	0000	0.023	9.7
	16 40	0008	0.023	
	16 40	0015	0.028	
	16 40	0029	0.030	
73/07/31	10 05	0000	0.048	22.3
	10 05	0005	0.047	
	10 05	0015	0.049	
	10 05	0025	0.070	
73/10/08	09 55	0000	0.061	13.8
	09 55	0015	0.062	
	09 55	0026	0.064	

STORET RETRIEVAL DATE 75/01/27

421603
41 18 31.0 080 28 21.0
SHENANGO RIVER RESERVOIR
42085 PENNSYLVANIA

11EPALES
3

2111202
0015 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00010 WATER TEMP CENT	00300 DO MG/L	00077 TRANSP SECCHI INCHES	00094 CNDUCTVY FIELD MICROMHO	00400 PH SU	00410 T ALK CACO3 MG/L	00610 NH3-N TOTAL MG/L	00625 TOT KJEL N MG/L	00630 NO2&NO3 N-TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P
73/04/20	17	10 0000	82.0	15.5	37	225		37	0.040	0.600	0.360	0.007
	17	10 0004	82.0	15.0		195	13.50	37	0.030	0.600	0.340	0.007
	17	10 0011	86.0	12.2		240	10.90	44	0.040	0.600	0.350	0.010
73/07/31	09	35 0000	25.6		35	205	7.30	62	0.070	1.200	0.060	0.008
	09	35 0005	25.5	7.0		204	7.10	61	0.070	0.700	0.070	0.008
	09	35 0010	25.5	6.7		206	6.70	63	0.090	0.600	0.060	0.008
73/10/08	10	15 0000	18.3	8.2	48	196	7.50	64	0.050	1.000	0.240	0.006
	10	15 0013	18.0	6.4		212	7.40	75	0.200	1.100	0.140	0.007

DATE FROM TO	TIME OF DAY	DEPTH FEET	00665 PHOS-TOT MG/L P	32217 CHLRPHYL A UG/L
73/04/20	17	10 0000	0.060	13.9
	17	10 0004	0.056	
	17	10 0011	0.036	
73/07/31	09	35 0000	0.058	55.3
	09	35 0005	0.058	
	09	35 0010	0.056	
73/10/08	10	15 0000	0.049	19.5
	10	15 0013	0.082	

APPENDIX E

TRIBUTARY and WASTEWATER TREATMENT PLANT DATA

STORET RETRIEVAL DATE 75/02/03

+21641
+1 15 03.0 080 28 13.0
SHENANGO RIVER
42039 1.5 SHARPSVILLE
U/SHENANGO RIVER RES
SEC RD BRDG IN NE SHARPSVILLE
TIEMALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	09	05	0.132	0.750	0.012	0.008	0.055
73/06/15	19	30	0.336	1.000	0.160	0.016	0.035
73/07/12	20	00	0.160	1.200	0.220	0.015	0.075
73/08/12	12	05	0.090	0.840	0.142	0.010	0.060
73/09/15	11	00	0.076	1.760	0.147	0.009	0.055
73/10/13	14	15	0.260	0.650	0.046	0.012	0.050
73/11/18	13	45	0.232	0.700	0.152	0.008	0.050
73/12/19	14	15	0.630	0.600	0.076	0.016	0.045
74/01/13	11	35	0.940	0.700	0.112	0.020	0.050
74/02/09	10	45	0.672	0.900	0.130	0.010	0.050
74/02/24	14	15	0.700	0.900	0.145	0.020	0.125
74/03/23	10	45	0.820	1.100	0.075	0.015	0.070
74/04/10	09	45	0.792	1.200	0.130	0.015	0.115
74/04/21	15	25	0.550	1.100	0.030	0.005K	0.060

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

4215A2
41 17 13.0 080 19 15.0
SHENANGO RIVER
42 7.5 FREDONIA
1/SHENANGO RIVER RES
RD 4308Z BRDG AT BIG BEND
11EMALES
c111204
0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/19	10 45		0.450	1.300	0.072	0.035	0.080
73/06/16	09 50		0.550	0.750	0.039	0.044	0.105
73/07/12	19 30		0.450	0.780	0.023	0.064	0.130
73/08/12	10 15		0.220	0.290	0.038	0.078	0.195
73/09/15	10 20		0.198	0.860	0.046	0.060	0.180
73/10/13	13 50		0.270	0.950	0.084	0.090	0.200
73/11/18	13 45		0.350	1.100	0.072	0.072	0.130
73/12/16	14 10		0.740	1.100	0.084	0.040	0.080
74/01/13	11 30		0.520	0.500	0.152	0.032	0.085
74/02/09	14 25		0.510	1.400	0.175	0.015	0.055
74/02/23	14 25		0.630	1.100	0.100	0.010	0.077
74/03/10	09 50		1.105	0.700	0.115	0.020	0.165
74/03/23	13 45		0.740	0.600	0.080	0.030	0.075
74/04/21	14 20		0.410	1.100	0.035	0.010	0.035

STORET RETRIEVAL DATE 75/02/03

+21051
+1 20 25.0 080 31 08.0
PENNSYLVANIA CREEK
+2 BERKS CO PAT PA
17SUSQUEHANNA RIVER BES
PAT 7.5 MINUTE QU. PA-DM NUMBER
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/19	12 14		0.150	0.780	0.072	0.050	0.125
73/06/15	10 00		0.140	1.500	0.231	0.150	0.280
73/07/12	19 40		0.013	1.100	0.017	0.020	0.080
73/08/12	10 05		0.020	0.940	0.027	0.030	0.125
73/09/15	10 45		0.012	1.540	0.054	0.024	0.090
73/10/13	14 00		0.120	1.230	0.027	0.028	0.150
73/11/18	14 00		0.380	0.500	0.050	0.076	0.190
73/12/16	14 20		1.180	0.900	0.072	0.044	0.085
74/01/13	12 00		1.000	0.500	0.048	0.104	0.145
74/02/10	11 00		1.180	0.800	0.066	0.030	0.055
74/02/24	14 45		1.090	1.100	0.115	0.025	0.090
74/03/23	09 55		0.672	0.700	0.047	0.020	0.057
74/04/10	10 00		0.690	1.100	0.065	0.025	0.090
74/04/21	15 00		0.140	1.000	0.035	0.030	0.075

STORET RETRIEVAL DATE 75/02/03

421061
41 20 50.0 080 31 00.0
00OTM 400
42 MERCER CO WAY MA
T/SHENANGO RIVER RES
RD 43037 BRDG AT NE CORNER OF ORANGEVILL
11EPALES 2111204
M 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/19	11 44		0.240	0.440	0.027	0.005K	0.010
73/06/15	09 45		0.370	0.480	0.018	0.009	0.015
73/07/12	14 30		0.440	0.500	0.022	0.011	0.025
73/10/13	13 45		0.250	0.150	0.012	0.004	0.009
73/11/14	14 15		0.312	0.300	0.016	0.005K	0.015
73/12/16	10 25		0.730	0.900	0.036	0.008	0.010
74/01/13	13 25		1.040	0.400	0.036	0.005K	0.010
74/02/10	11 00		1.280	0.200	0.025	0.005K	0.005
74/02/24	14 00		0.870	0.600	0.035	0.010	0.035
74/03/23	10 00		0.720	0.300	0.035	0.010	0.010
74/04/10	10 15		0.770	0.600	0.040	0.010	0.010
74/04/21	14 55		0.380	1.200	0.045	0.005K	0.015

K VALUE KNOWN TO BE
LESS THAN INDICATED

START RETRIEVAL DATE 73/01/03

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	01071 PHOS-ORTHO MG/L P	01065 PHOS-TOT MG/L P
73/03/14	11	20	0.280	0.540	0.050	0.100	0.120
73/06/15	09	30	0.520	2.730	0.300	0.270	0.375
73/07/12	14	00	1.580	0.750	0.017	0.490	0.650
73/08/12	11	10	1.500	0.250	0.038	0.680	0.795
73/09/15	10	30	1.760	0.630	0.644	0.590	0.710
73/10/13	12	50	0.410	0.500	0.038	0.320	0.400
73/11/16	14	30	0.616	0.450	0.068	0.160	0.210
73/12/16	15	00	0.850	0.500	0.128	0.080	0.100
74/01/13	12	30	1.060	0.200	0.132	0.084	0.100
74/02/10	11	15	0.990	0.700	0.175	0.130	0.175
74/02/24	14	00	0.890	1.300	0.130	0.050	0.100
74/03/23	10	35	0.540	1.000	0.080	0.030	0.035
74/04/10	10	30	0.670	1.400	0.070	0.015	0.025
74/04/21	14	35	0.240	1.000	0.110	0.025	0.075

STORET RETRIEVAL DATE 75/02/03

421621
41 17 00.0 076 19 12.0
LACKAWANNOCK
42 7.5 FREDONIA
T/SHENANGO RIVER RES
RD 1554 BRDG AT BIG BEND
TIEPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	10 35		0.220	0.370	0.027	0.011	0.020
73/06/16	09 55		0.360	2.200	0.042	0.015	0.390
73/07/12	19 40		0.320	1.080	0.019	0.027	0.210
73/08/12	10 25		0.231	0.210	0.019	0.028	0.035
73/09/15	10 15		0.200	0.720	0.022	0.019	0.240
73/10/13	13 40		0.154	0.800	0.017	0.027	0.175
73/11/18	13 50		0.232	0.700	0.032		0.020
73/12/16	14 15		0.710	1.500	0.084	0.012	0.015
74/01/13	11 45		0.650	0.100K	0.032	0.008	0.015
74/02/09	14 20		0.620	0.550	0.020	0.006	0.015
74/02/23	14 20		0.610	0.700	0.040	0.005K	0.020
74/03/10	09 45		0.940	0.550	0.050	0.005	0.042
74/03/23	12 50		0.600	0.600	0.030	0.010	0.015
74/04/21	14 15		0.330	0.300	0.015	0.005	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

STONEY MEINTERVAL DATE 73/02/13

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	10 20		0.800	0.3[illegible]	0.028	0.014	0.020
73/05/16	10 05		1.200	5.100	0.138	0.053	
73/07/12	20 00		0.740	0.580	0.024	0.031	0.105
73/08/12	10 40		0.176	0.520	0.014	0.025	0.065
73/09/15	10 10		0.430	0.980	0.020	0.037	0.045
73/10/15	14 00		0.149	0.350	0.014	0.031	0.045
73/11/14	14 00		0.630	0.150	0.016	0.010	0.021
73/12/16	14 25		2.100	0.500	0.028	0.016	0.025
74/01/13	11 55		1.920	0.700	0.032	0.012	0.025
74/02/04	14 15		1.920	0.400	0.050	0.010	0.015
74/02/23	14 35		1.430	0.500	0.030	0.015	0.045
74/03/10	10 05		1.520	2.400	0.100	0.015	0.075
74/03/23	14 05		1.600	0.800	0.025	0.010	0.020
74/04/21	14 10		0.730	0.300	0.020	0.005	0.025

STORET RETRIEVAL DATE 75/02/03

421601
41 16 58.0 080 23 16.0
MASANGEE RUN
42 7.5 SHARPSVILLE
1/SHENANDO RIVER RES
PA HWY 258 BRDG 1.2 MI E OF CLARK
11EPALES 2111204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/05/14	10 05		0.170	0.310	0.005K	0.007	0.010
73/06/16	10 15		0.840	3.600	0.095	0.044	
73/07/12	20 10		0.035	0.340	0.029		0.025
73/08/12	10 50		0.024	1.000	0.044	0.010	0.035
73/09/15	10 00		0.042	1.400	0.045	0.005	0.040
73/10/13	14 10		0.017	0.450	0.014	0.014	0.030
73/11/18	14 10		0.080	1.100	0.040	0.008	0.022
73/12/16	14 35		1.180	0.400	0.028	0.005	0.027
74/01/13	12 05		1.180	0.100K	0.012	0.005K	0.025
74/02/09	14 05		1.090	0.300	0.020	0.005K	0.010
74/02/23	14 45		0.970	1.000	0.035	0.015	0.030
74/03/10	10 10		0.850	3.700	0.128	0.015	0.090
74/03/23	14 10		0.710	1.100	0.025	0.005	0.020
74/04/21	14 05		0.232	0.400	0.015	0.005K	0.025

K VALUE KNOWN TO BE
LESS THAN INDICATED

Fig. A

STORET RETRIEVAL DATE 75/02/03

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/14	09	50	0.520	0.350	0.022	0.012	0.020
73/05/15	10	22	0.480	3.050	0.056	0.030	
73/07/12	20	15	0.170	0.320	0.039	0.018	0.030
73/08/12	10	55	0.040	0.100K	0.029	0.015	0.030
73/09/15	09	45	0.064	0.520	0.044	0.012	0.035
73/10/13	14	20	0.015	0.650	0.031	0.013	0.029
73/11/16	14	20	0.092	0.550	0.016	0.012	0.045
73/12/16	14	45	1.100	0.400	0.040	0.026	0.035
74/01/04	12	16	1.400	0.200	0.024	0.010	0.020
74/02/04	14	00	1.560	0.600	0.030	0.016	0.015
74/02/23	14	50	0.940	0.900	0.030	0.020	0.045
74/03/10	10	15	1.000	3.100	0.230	0.025	0.080
74/03/23	14	20	1.000	0.500	0.025	0.020	0.045
74/04/21	14	00	0.380	0.400	0.020	0.005	0.015

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

421631
41 15 30.0 080 27 30.0
PINE HOLLOW RUN
42 7.5 SHARPSVILLE
T/SHENANGO RIVER RES
PA HWY 518 BRDG JUST W OF LAMONTS CORNER
MERCER 111 2111204
W 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P
73/03/14	09	28	0.300	0.350	0.032	0.050	0.065
73/06/16	10	45	0.510	1.540	0.096	0.056	
73/07/12	20	20	0.189	0.340	0.042	0.075	0.095
73/08/12	10	00	0.035	0.480	0.115	0.063	0.100
73/09/15	11	15	0.170	0.600	0.044	0.138	0.160
73/10/13	14	50	0.200	0.400	0.049	0.154	0.190
73/11/18	13	50	0.108	0.250	0.056	0.168	0.195
73/12/16	14	00	0.790	0.400	0.072	0.056	0.080
74/01/13	11	20	0.750	0.600	0.088	0.080	0.115
74/02/09	10	00	0.660	0.300	0.050	0.030	0.035
74/02/24	13	00	0.920	1.300	0.270	0.110	0.230
74/03/23	10	55	0.610	0.600	0.055	0.035	0.060
74/04/10	09	30	0.910	1.300	0.120	0.035	0.075
74/04/21	15	25	0.068	0.900	0.025	0.065	0.075

STORET RETRIEVAL DATE 75/02/03

9216AM 19 9216AM P010000
41 23 55.0 080 23 10.0
BOROUGH OF GREENVILLE
S2 7.5 GREENVILLE W
D/SHENANGO RIVER RESERVO
SHENANGO RIVER RESERVOIR
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/06/26	09 00								
CP(T)-			10.800	4.100	0.470	7.300	9.000	1.160	1.690
73/06/26	15 00								
73/07/24	09 00								
CP(T)-			8.100	4.500	0.440	8.900	10.500	1.010	1.040
73/07/24	15 00								
73/08/28	09 00								
CP(T)-				5.300	1.760	8.700	10.500	1.040	0.879
73/08/28	15 00								
73/09/25	09 00								
CP(T)-			13.400	4.800	0.660	12.000	12.000	0.880	0.834
73/09/25	15 00								
73/10/30	09 00								
CP(T)-			8.700	2.500	0.270	4.600	5.400	1.940	1.080
73/10/30	15 00								
73/11/27	09 00								
CP(T)-			11.000	4.500	0.540	5.100	6.450	1.620	1.330
73/11/27	15 00								
73/12/26	09 00								
CP(T)-			11.400	3.800	1.000	5.000	6.600	3.570	1.570
73/12/26	15 00								
74/01/29	09 00								
CP(T)-			4.600	6.800	1.440	2.320	4.800	2.180	1.960
74/01/29	15 00								
74/02/26	09 00								
CP(T)-			6.100	9.300	2.400	4.500	5.500	1.740	1.620
74/02/26	15 00								
74/03/28	09 00								
CP(T)-			2.640	4.500	0.670	3.900	4.400	2.350	2.730
74/03/28	15 00								
74/04/30	09 00								
CP(T)-			7.500	7.400	0.710	5.530	6.700	2.380	2.250
74/04/30	15 00								
74/05/28	09 00								
CP(T)-			13.000	6.400	1.300	5.500	6.900	1.320	1.980
74/05/28	15 00								

STORET RETRIEVAL DATE 75/02/03

4216AM 1r4216AM P010000
41 23 55.0 0H0 23 10.0
GREENVILLE GREENVILLE
42 7.5 GREENVILLE W
O/SMENANGO RIVER RESERVO
SMENANGO RIVER RESERVOIR
11EPALES 2141204
0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 N02&N03 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
74/06/25	04 00								
CNTI-			13.400	5.200	3.420	5.400	8.400	1.540	1.210
74/06/26	15 00								

45A

STORET RETRIEVAL DATE 75/02/03

4216AL IP4216AL M007013
41 24 44.0 080 23 13.0
REYNOLDS DISPOSAL (GREENVILLE)
42 7.5 GREENVILLE W
02/SHENANGO RIVER RESERVO
SHENANGO RIVER RESERVOIR
TIEPALES 21412WW
W 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/17	11 00								
CP(T)-			0.100	11.000	0.490	3.900	5.900	0.388	0.575
73/07/17	16 07								
73/08/20	11 00								
CP(T)-			0.980	16.000	3.740	6.600	7.300	0.207	0.325
73/08/20	16 00								
73/09/20	11 00								
CP(T)-			0.340	15.600	9.660	6.380	9.200	0.295	0.250
73/09/20	16 00								
73/10/18	11 00								
CP(T)-			1.200	21.000	7.100	5.700	7.900	0.195	0.207
73/10/18	16 00								
73/11/19	11 00								
CP(T)-			0.350	12.000	0.830	4.700	6.100	0.608	0.388
73/11/19	16 00								
73/12/20	11 00								
CP(T)-			0.600	8.900	0.790	2.310	4.500	0.388	0.608
73/12/20	16 00								
74/01/21	11 00								
CP(T)-			2.520	3.600	0.210	0.740	1.250	1.110	0.608
74/01/21	16 00								
74/02/20	11 00								
CP(T)-			2.000	10.000	1.250	3.500	4.900	0.608	0.608
74/02/20	16 00								
74/03/20	11 00								
CP(T)-			3.520	2.000	0.050K	1.450	2.200	0.608	0.853
74/03/20	16 00								
74/04/19	11 00								
CP(T)-			3.800	4.000	0.100	1.900	2.700	0.853	1.110
74/04/19	16 00								
74/05/20	11 00								
CP(T)-			1.480	9.000	0.210	1.900	3.400	0.853	1.110
74/05/20	16 00								
74/06/20	11 00								
CP(T)-			1.200	14.000	1.250	3.500	5.700	0.388	0.388
74/06/20	16 00								

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

[illegible] [illegible] P0000000

41 24 30.0 082 23 30.0
WESTINGHOUSE ELECTRIC CORP
42 03 GREENVILLE
I/SHENANDO RIVER RESERVO
SHENANDO RIVER RESERVOIR
ILEPALES 21412G4
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/01	09 00		40.000		0.370	3.900	10.000	0.010	0.010
73/09/04	14 30						1.580	0.010	0.010
73/10/02	14 00		147.000		5.600	16.000	45.000	0.010	0.010
73/11/01	11 00		255.000	15.000	3.000	140.000	150.000	0.010	0.010
73/12/10	12 30		71.000	1.000K	0.725	64.000	75.000	0.010	0.010
74/01/04	10 00		370.000	0.250K	0.040K	0.130	3.900	0.010	0.010
74/02/01	10 00		125.000	5.000	2.100	173.000	180.000	0.010	0.010
74/03/01	08 00		155.000	2.000	1.950	170.000	170.000	0.010	0.010
74/04/01	08 00		38.000	1.000K	0.270	115.000	125.000	0.010	0.010
74/05/06	11 00		100.000	2.900	2.800	220.000	300.000	0.010	0.010
74/06/01	08 00		155.000	2.500	2.300	64.000	95.000	0.010	0.010
74/07/01	12 00		81.000	2.000	0.990	73.000	73.000	0.010	0.010
74/08/27			2.700	1.300	0.050K		71.000	0.010	0.010

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

=216AE A54216AE P000960
41 23 05.0 080 26 30.0
JAMESTOWN STP
42 7.5 GREENVILLE W
T/SMENAGO RESERVOIR
SMENAGO RIVER
11EPALES 2141204
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/08/13	12	00							
CP(T)-			3.400	0.460	0.154	6.670	7.600	0.093	0.120
73/08/14	12	00							
73/09/17	00	00							
CP(T)-			5.100	0.550	0.088	8.000	8.200	0.072	0.116
73/09/17	24	00							
73/10/14	07	00	1.920	8.280	0.050	8.275	8.280	0.074	0.112
73/11/13	00	00							
CP(T)-			10.600	7.380	0.086	7.375	7.380	0.085	0.103
73/11/13	02	00							
73/12/14			9.900	1.400	0.014	4.300	4.300	0.158	0.106
74/01/14	00	00							
CP(T)-			14.300	6.500	0.220	5.550	5.800	0.112	0.156
74/01/14	04	00							
74/02/17	00	00							
CP(T)-			10.400	1.400	0.048	4.100	4.400	0.127	0.201
74/02/17	04	00							
74/03/17	00	00							
CP(T)-			7.100	1.000K	0.050K	1.650	1.800	0.241	0.189
74/03/17	04	00							
74/04/17	00	00							
CP(T)-			8.000	1.000K	0.340	2.200	2.300	0.240	0.253
74/04/17	24	00							
74/05/17	12	00	6.720	1.100	0.067	2.000	2.200	0.231	0.243
74/06/15			5.880	1.000K	0.050K	5.400	5.800		0.213
74/07/15	16	00	4.900	1.000K	0.050K	5.000	5.300	0.105	0.147
74/08/14			4.000	1.000K	0.050K		2.900	0.110	0.147

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/10

[illegible] [illegible] P0000000
41 24 07.0 082 21 22.0
GREENVILLE TIMES DIVISION
42 [illegible] GREENVILLE
[illegible]SHENANDOAH RIVER RESERVO
[illegible]
FEMALES 21412004
[illegible] 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/06/21			0.130	1.320	0.140	0.350	3.000	0.320	0.259
73/07/17	14 30		2.130	0.130			0.039	0.320	0.800
73/08/17	11 30		1.000	0.190	0.072	0.120	2.000	0.320	0.800
73/09/25	15 00		0.560	0.110	0.012	0.077	0.280	0.320	0.266
73/10/26	14 00		3.800	0.500K	0.130	0.052	0.050K	0.320	0.260
74/04/11	14 00		3.680	1.000K	0.071	0.050K	0.050K	0.320	0.266
74/05/20			17.000	1.000K	0.240	0.015		0.320	0.259
74/06/17	03 00		3.200	1.000K	0.100	0.050K	0.050K	0.320	0.800
74/09/12	14 00		2.400	0.500K	0.050K	0.050K	0.057	0.320	0.270

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

[illegible] 00002
41 25 00.0 080 14 00.0
COMMONWEALTH PENNY SCHOOL DISTRICT
42 [illegible] 250 CLEVELAND
I/SHENANDOAH RIVER RESERVO
LITTLE SHENANDOAH RIVER
ILEMALES 21412
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/06/25	10	00	43.200	0.470	0.055	4.300	5.600	0.002	0.003
73/07/25	10	00	29.000	2.300	0.140	4.400	5.500	0.002	0.001
73/08/24	10	00	8.250	2.200	0.023	1.640	2.200	0.001	0.001
73/09/25	10	00	20.000	1.000	0.520	6.300	6.500	0.004	0.005
73/10/25	10	00	4.600	0.300	0.010K	6.100	6.500	0.009	0.005
73/11/23	10	00	5.000	0.500K	0.018	5.200	5.300	0.001	0.005
73/12/21	10	00	13.000	0.500K	0.034	3.490	4.500	0.008	0.006
74/01/25	10	00	14.200	0.500K	0.150	5.100	5.200	0.010	0.007
74/02/25	10	00	24.000	2.500	0.077	5.600	8.700	0.009	0.005
74/03/25	10	00	25.000	1.200	0.050K	7.100	8.200	0.008	0.007
74/04/25	10	00	25.200	2.200	0.050K	7.300	8.400	0.009	0.005
74/05/24	10	00	18.500	3.400	0.050K	8.300	8.900	0.009	0.005
74/06/21	10	00	52.000	4.200	0.050K	13.000	13.700	0.0005	0.002

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

421614 0342107 P0000060
41 24 39.0 082 23 20.0
NO. OF WERNER CO. INC. GREENSVIL
42 7.5 GREENVILLE W
1/SHENANDO RIVER RESERVO
LITTLE SHENANDO
11EPALES 2141204
W 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	00610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/10	15 05		0.140	1.100	0.049		1.400	0.045	0.046
73/08/15	15 10		0.044		0.085	0.065	1.200	0.046	0.046
73/09/06	18 00		0.066	1.500	0.080	0.052		0.046	0.046
73/11/14	13 00		0.290	1.100	0.031	0.093	1.250	0.045	0.046
73/12/31	10 00		0.240	1.000	0.040K	0.150	0.550	0.045	0.046
74/01/21	14 30		1.280	1.400	0.060	0.140	0.530	0.046	0.046
74/02/28	09 00		1.240	1.000K	0.100	0.220	0.330	0.045	0.046
74/03/26	14 00		0.720	1.000K	0.050K	0.100	0.490	0.046	0.046
74/04/29	09 00		0.200	1.200	0.650	0.330	0.350	0.044	0.046
74/05/23	13 30		0.121	3.300	0.050K	0.017	0.750	0.045	0.046
74/06/29	16 00		0.240	1.200	0.050K	0.115	1.650	0.044	0.045
74/07/31	08 30		0.056	1.000K	0.050K	0.310	1.650	0.042	0.043

K VALUE KNOWN TO BE
LESS THAN INDICATED

STORET RETRIEVAL DATE 75/02/03

[illegible] P0000[illegible]
[illegible] 21 24 21.0 082 25 37.0
ANDERSONS AUKILE HOME PARK
42 [illegible] 7.5 GREENVILLE [illegible]
1/SHENANGO RIVER RESERVO
[illegible] 4003
ILEVALES 21412[illegible]
4 0000 FEET DEPTH

DATE FROM TO	TIME OF DAY	DEPTH FEET	00630 NO2&NO3 N-TOTAL MG/L	00625 TOT KJEL N MG/L	03610 NH3-N TOTAL MG/L	00671 PHOS-DIS ORTHO MG/L P	00665 PHOS-TOT MG/L P	50051 FLOW RATE INST MGD	50053 CONDUIT FLOW-MGD MONTHLY
73/07/02	10	00	0.250	0.700	0.030	2.400	2.400	0.003	0.004
73/08/30	10	00		2.700	0.05R	4.620	5.300	0.003	0.004
73/10/05	10	00	0.160	8.550	2.100	5.550	6.050	0.003	0.004
73/11/06	09	30	0.040	12.500	1.470	6.900	7.800	0.003	0.004
73/12/04	10	30	0.040	21.000	6.700	7.200	8.900	0.003	0.003
74/01/07	10	00	0.120	29.000	4.700	5.800	6.700	0.003	0.003
74/02/05	10	30	0.480	6.400	3.500	4.500	4.700	0.003	0.003
74/03/05	11	00	0.280	4.900	2.400	3.750	4.000	0.003	0.004
74/04/03	10	00	1.280	1.000R	0.250R	1.400	3.100	0.004	0.004
74/05/08	09	30	1.160	1.000R	1.000R	0.460	1.800	0.004	0.004
74/06/08	09	00	1.440	1.000R	1.000R	0.420	0.630	0.004	0.004

R VALUE KNOWN TO BE
LESS THAN INDICATED